

Water-soluble copolymers of monoethylenically unsaturated polyalkylene oxide monomers and dipolar monomers containing at least one nitrogen atom

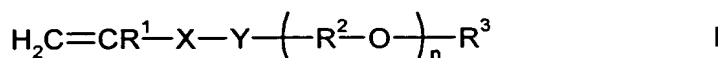
# Abstract

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Water-soluble copolymers which comprise, in copolymerized form,

- (a) 60 to 99% by weight of at least one monoethylenically unsaturated polyalkylene oxide monomer of the formula I

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in which the variables have the following meanings:

- 15      X    is -CH<sub>2</sub>- or -C(O)-, if Y is -O-;  
               is -C(O)-, if Y is -NH-;  
               is -O- or -O-(CH<sub>2</sub>)<sub>4</sub>-, if Y is a chemical bond;  
               Y    is -O-, -NH- or a chemical bond;  
               R<sup>1</sup>    is hydrogen or methyl;  
 20      R<sup>2</sup>    is C<sub>2</sub>-C<sub>4</sub>-alkylene radicals, which may be identical or different and also  
               linear or branched, but where at least 50% of the radicals R<sup>2</sup> are ethylene;  
               R<sup>3</sup>    is C<sub>1</sub>-C<sub>22</sub>-alkyl, phenyl, p-(C<sub>1</sub>-C<sub>12</sub>-alkyl)phenyl or hydrogen;  
               n    is an integer from 6 to 50,

- 25      (b)    1 to 40% by weight of at least one nonquaternized dipolar monomer comprising  
               at least one nitrogen atom,

- (c)    0 to 39% by weight of other nonionic monoethylenically unsaturated monomers  
               and

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- (d)    0 to 10% by weight of other anionic monoethylenically unsaturated monomers

and have an average molecular weight M<sub>w</sub> of from 2000 to 500 000 D,

- 35      and the use of the copolymers as dispersants and sequestrants for pigmented  
               materials, as additive for detergents, laundry pretreatment compositions, cleaners for  
               hard surfaces, dentifrices and bodycare compositions, and as auxiliaries for textile  
               processes, paper making and paper processing and deinking processes.